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WHAT IS CLAIMED IS:

　　1. A local area network path control system having a
plurality of terminals and a plurality of hubs forming a simplex
basic local area network, each of said terminals having first
and second local area network controllers and assigned with
specific internet protocol address, said first local area
network controller directly connected to one of said hubs and
assigned with first specific media access control address, said
second local area network controller directly connected to
another one of said hubs and assigned with second specific media
access control address, either of said first local area network
controller or said second local area network controller put in
service and serving as an active controller, said first specific
media access control address used for an active media access
control address when said first local area network controller
is said active controller, said second specific media access
control address used for said active media access control
address when said second local area network controller is said
active controller, wherein each of said terminals comprising:

　　a first table for registering said specific internet
protocol address, said first and said second specific media
access control addresses and operation information indicating
which said first and said second local area network controllers
is put in service,

　　a first broadcasting portion for broadcasting an address
notification formed on the basis of registrations of said first
table onto said simplex basic local area network when starting
is carried out, said address notification including said

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specific internet protocol address as a source internet

protocol address, and said active media access control address

as a source media access control address,

a replying portion for replying to another address

notification transmitted through said simplex basic local area

network, said replying portion transmitting a reply including

said specific internet protocol address as said source internet

protocol address and said active media access control addresses

as said source media access control address to a source terminal

of the other address notification through said simplex basic

local area network,

a second table for registering said source internet

protocol address and said source media access control address

included in each of the other address notification and another

reply transmitted through said simplex basic local area

network,

a registering portion for abstracting said source

internet protocol address and said source media access control

address from each of the other address notification and the

other reply to register them into said second table,

a first failure detecting portion for detecting link

failure between said active controller and the one of said hubs

to which said active controller directly connected,

a changing portion for changing said active controller

between said fist local area network controller and said second

local area network controller and for rewriting said operation

information registered in said first table so that said

operating controller indicated by said operation information

is changed from one to the other of said first and said second

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local area network controllers when said first failure detecting portion detects said link failure,

a second broadcasting portion for broadcasting a changing notification onto said simplex basic local area network when said changing portion changes said active controller, said changing notification including said specific internet protocol address as said source internet address and said active media access control address, and

a rewriting portion for rewriting said second table about only said source media access control address in response to another changing notification transmitted through said simplex basic local area network.

2. A local area network path control system as claimed in Claim 1, each of said terminals further comprising:

a second failure detecting portion for transmitting a local area network check signal from one of said first and said second local area network controllers to the other of said first and said second local area network controllers through said simplex basic local area network to detect a failure between two hubs directly connected to said first and said second local area network controllers respectively.

3. A local area network path control system as claimed in Claim 1, each of said terminals further comprising:

an address check signal transmitting portion for transmitting an address check signal using one of combinations of said source internet protocol address and said source media access control address registered in said second table onto said simplex basic local area network to obtain a response through said simplex basic local area network,

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a deleting portion for deleting the combination of said source internet protocol address and said source media access control address from said second table when said response is not obtained through said simplex basic local area network by elapse of a predetermined time.

4. A local area network path control system as claimed in Claim 1, said hubs connected in a ring and classified into two groups, wherein said first local area network controller is connected to one of hubs belonging one of said groups while said second local area network controller is connected to one of hubs belonging the other of said groups.

5. A local area network path control system as claimed in Claim 1, wherein said replying portion compare said source internet protocol address and said source media access control address included in the other address notification with said specific internet protocol address and each of said first and said second media access control addresses, respectively, to transmit a duplicate notification instead of said address notification when said source internet protocol address coincides with said specific internet protocol address or when said source media access control address coincides with one of said first and said second media access control addresses.

6. A terminal used in a local area network system having a plurality of hubs forming a simplex basic local area network, said terminal having first and second local area network controllers and assigned with specific internet protocol address, said first local area network controller directly connected to one of said hubs and assigned with first specific media access control address, said second local area network

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controller directly connected to another one of said hubs and assigned with second specific media access control address, either of said first local area network controller or said second local area network controller put in service and serving as an active controller, said first specific media access control address used for an active media access control address when said first local area network controller is said active controller, said second specific media access control address used for said active media access control address when said second local area network controller is said active controller, said terminal comprising:

a first table for registering said specific internet protocol address, said first and said second specific media access control addresses and operation information indicating which said first and said second local area network controllers is put in service,

a first broadcasting portion for broadcasting an address notification formed on the basis of registrations of said first table onto said simplex basic local area network when starting is carried out, said address notification including said specific internet protocol address as a source internet protocol address, and said active media access control address as a source media access control address,

a replying portion for replying to another address notification transmitted through said simplex basic local area network, said replying portion transmitting a reply including said specific internet protocol address as said source internet protocol address and said active media access control addresses as said source media access control address to a source terminal

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of the other address notification through said simplex basic local area network,

a second table for registering said source internet protocol address and said source media access control address included in each of the other address notification and another reply transmitted through said simplex basic local area network,

a registering portion for abstracting said source internet protocol address and said source media access control address from each of the other address notification and the other reply to register them into said second table,

a first failure detecting portion for detecting link failure between said active controller and the one of said hubs to which said active controller directly connected,

a changing portion for changing said active controller between said fist local area network controller and said second local area network controller and for rewriting said operation information registered in said first table so that said operating controller indicated by said operation information is changed from one to the other of said first and said second local area network controllers when said first failure detecting portion detects said link failure,

a second broadcasting portion for broadcasting a changing notification onto said simplex basic local area network when said changing portion changes said active controller, said changing notification including said specific internet protocol address as said source internet address and said active media access control address, and

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a rewriting portion for rewriting said second table about only said source media access control address in response to another changing notification transmitted through said simplex basic local area network.

7. A terminal as claimed in Claim 6 further comprising:

a second failure detecting portion for transmitting a local area network check signal from one of said first and said second local area network controllers to the other of said first and said second local area network controllers through said simplex basic local area network to detect a failure between two hubs directly connected to said first and said second local area network controllers respectively.

8. A terminal as claimed in Claim 6 further comprising:

an address check signal transmitting portion for transmitting an address check signal using one of combinations of said source internet protocol address and said source media access control address registered in said second table onto said simplex basic local area network to obtain a response through said simplex basic local area network,

a deleting portion for deleting the combination of said source internet protocol address and said source media access control address from said second table when said response is not obtained through said simplex basic local area network by elapse of a predetermined time.

9. A terminal as claimed in Claim 6, said hubs connected in a ring and classified into two groups, wherein said first local area network controller is connected to one of hubs belonging one of said groups while said second local area network controller is connected to one of hubs belonging the

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other of said groups.

10. A terminal as claimed in Claim 6, wherein said
replying portion compare said source internet protocol address
and said source media access control address included in the
other address notification with said specific internet protocol
address and each of said first and said second media access
control addresses, respectively, to transmit a duplicate
notification instead of said address notification when said
source internet protocol address coincides with said specific
internet protocol address or when said source media access
control address coincides with one of said first and said second
media access control addresses.

11. A method of controlling a path formed in a local area
network having a plurality of terminals and a plurality of hubs
forming a simplex basic local area network, each of said
terminals having first and second local area network
controllers and assigned with specific internet protocol
address, said first local area network controller directly
connected to one of said hubs and assigned with first specific
media access control address, said second local area network
controller directly connected to another one of said hubs and
assigned with second specific media access control address,
either of said first local area network controller or said
second local area network controller put in service and serving
as an active controller, said first specific media access
control address used for an active media access control address
when said first local area network controller is said active
controller, said second specific media access control address
used for said active media access control address when said

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second local area network controller is said active controller, comprising the steps of:

registering, in a first table, said specific internet protocol address, said first and said second specific media access control addresses and operation information indicating which said first and said second local area network controllers is put in service,

broadcasting, from a first broadcasting portion, an address notification formed on the basis of registrations of said first table onto said simplex basic local area network when starting is carried out, said address notification including said specific internet protocol address as a source internet protocol address, and said active media access control address as a source media access control address,

replying, at a replying portion, to another address notification transmitted through said simplex basic local area network, said replying portion transmitting a reply including said specific internet protocol address as said source internet protocol address and said active media access control addresses as said source media access control address to a source terminal of the other address notification through said simplex basic local area network,

abstracting, at a registering portion, abstracting said source internet protocol address and said source media access control address from each of the other address notification and another reply transmitted through said simplex basic local area network,

registering, in a second table, said source internet protocol address and said source media access control address

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abstracted from each of the other address notification and the other reply,

detecting, at a first failure detecting portion, link failure between said active controller and the one of said hubs to which said active controller directly connected,

changing, at a changing portion, said active controller between said fist local area network controller and said second local area network controller,

rewriting, at said changing portion, said operation information registered in said first table so that said operating controller indicated by said operation information is changed from one to the other of said first and said second local area network controllers when said first failure detecting portion detects said link failure,

broadcasting, from a second broadcasting portion, a changing notification onto said simplex basic local area network when said changing portion changes said active controller, said changing notification including said specific internet protocol address as said source internet address and said active media access control address, and

rewriting, at a rewriting portion, said second table about only said source media access control address in response to another changing notification transmitted through said simplex basic local area network.

12. A program product comprising, computer readable instructions and a recording medium bearing the computer readable instructions; the instructions being adaptable to enable computers to perform a method of controlling a path formed in a local area network having a plurality of terminals

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and a plurality of hubs forming a simplex basic local area
network, each of said terminals having first and second local
area network controllers and assigned with specific internet
protocol address, said first local area network controller
directly connected to one of said hubs and assigned with first
specific media access control address, said second local area
network controller directly connected to another one of said
hubs and assigned with second specific media access control
address, either of said first local area network controller or
said second local area network controller put in service and
serving as an active controller, said first specific media
access control address used for an active media access control
address when said first local area network controller is said
active controller, said second specific media access control
address used for said active media access control address when
said second local area network controller is said active
controller, the method comprising the steps of:

registering, in a first table, said specific internet
protocol address, said first and said second specific media
access control addresses and operation information indicating
which said first and said second local area network controllers
is put in service,

broadcasting, from a first broadcasting portion, an
address notification formed on the basis of registrations of
said first table onto said simplex basic local area network when
starting is carried out, said address notification including
said specific internet protocol address as a source internet
protocol address, and said active media access control address
as a source media access control address,

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replying, at a replying portion, to another address
notification transmitted through said simplex basic local area
network, said replying portion transmitting a reply including
said specific internet protocol address as said source internet
protocol address and said active media access control addresses
as said source media access control address to a source terminal
of the other address notification through said simplex basic
local area network,

abstracting, at a registering portion, abstracting said
source internet protocol address and said source media access
control address from each of the other address notification and
another reply transmitted through said simplex basic local area
network,

registering, in a second table, said source internet
protocol address and said source media access control address
abstracted from each of the other address notification and the
other reply,

detecting, at a first failure detecting portion, link
failure between said active controller and the one of said hubs
to said active controller directly connected,

changing, at a changing portion, said active controller
between said fist local area network controller and said second
local area network controller,

rewriting, at said changing portion, said operation
information registered in said first table so that said
operating controller indicated by said operation information
is changed from one to the other of said first and said second
local area network controllers when said first failure
detecting portion detects said link failure,

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broadcasting, from a second broadcasting portion, a changing notification onto said simplex basic local area network when said changing portion changes said active controller, said changing notification including said specific internet protocol address as said source internet address and said active media access control address, and

rewriting, at a rewriting portion, said second table about only said source media access control address in response to another changing notification transmitted through said simplex basic local area network.